Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (presently amended) An in vitro method of expressing a specific isoform of a gene product in a mammalian cell absent other isoforms of said gene product, said method comprising:

(a) exposing a mammalian cell to at least one nucleic acid, said nucleic acid being at least a partially double-stranded ribonucleic acid and the double-stranded portion having at least 95% sequence identity to a common nucleic acid sequence shared by two or more isoforms of said gene product; and

(b) introducing an expression vector encoding said specific isoform of said gene product into said mammalian cell, said specific isoform having a sequence comprising one or more mismatches relative to said double-stranded portion of said nucleic acid, operably linked to a promoter capable of driving expression of said specific isoform in said cell.

2. (original) The method of claim 1, wherein said common nucleic acid sequence is at least 19 consecutive nucleotides in length.

3. (previously amended) The method of claim 1, wherein said common nucleic acid sequence is common to all endogenous isoforms of said gene product in said cell.

4. (previously amended) The method of claim 1, wherein the double-stranded portion of said nucleic acid is 100% identical to said common nucleic acid sequence.

5. (previously amended) The method of claim 1, wherein said common nucleic acid is 19 to 25 nucleotides long.

6. (previously amended) The method of claim 1, wherein said at least partially double-stranded ribonucleic acid comprises a double-stranded portion of at least 19 nucleotides and at least one two-nucleotide single-stranded 3' overhang.

7. (previously amended) The method of claim 1, wherein said specific isoform comprises a sequence comprising two or more mismatches relative to said double-stranded portion of said nucleic acid.

8. (previously amended) The method of claim 1, wherein said expression vector encodes said specific isoform using at least one codon that differs from the corresponding endogenous sequence coding said desired isoform.

9. (previously amended) The method of claim 8, wherein said expression vector encodes said specific isoform using two codons that differ from the corresponding endogenous sequence coding said desired isoform.

10. (previously amended) The method of claim 8, wherein said specific isoform has an identical protein sequence to the corresponding endogenous isoform.

11. (previously amended) The method of claim 1, wherein said specific isoform replaces a mutant isoform in the mammalian cell.

12. (presently amended) The method of claim 11, wherein said mutant isoform is oncogenic~~, apoptotic, tumor suppressive, inflammation inducive or suppressive, or angiogenic~~.

13. (withdrawn) The method of claim 1, further comprising determining the function of said desired isoform.

14. (previously amended) The method of claim 1, wherein said cell is a cancer cell.

15. (presently amended) The method of claim 14, wherein said cell is ~~selected from the group consisting of~~ a HeLa (cervical cancer) cell~~, PC3 (prostate cancer), MDA-MB-231 (breast cancer) and MCF-7~~.

16. (presently amended) The method of claim 1, wherein said specific isoform is transcribed under the control of ~~an endogenous promoter using a knock-in construct~~ a promoter endogenous to said mammalian cell.

17. (previously amended) The method of claim 1, wherein said expression vector comprises a constitutive promoter operably linked to said specific isoform.

18. (previously amended) The method of claim 1, wherein said expression vector comprises an inducible promoter operably linked to said specific isoform.

19. (previously amended) The method of claim 1, wherein said expression vector comprises a tissue-specific promoter operably linked to said specific isoform.

20. (previously amended) A kit comprising reagents expressing a specific isoform of a gene product in a cell absent other isoforms of said gene product, wherein said kit comprises a nucleic acid being at least a partially double-stranded ribonucleic acid and the double-stranded portion having at least 95% sequence identity to a common nucleic acid sequence shared by two or more isoforms of said gene product; and an expression vector encoding said specific isoform of said gene product, said specific isoform having a sequence comprising one or more mismatches relative to said double-stranded portion of said nucleic acid, operably linked to a promoter capable of driving expression of said specific isoform in said cell.

21. (withdrawn) A mammalian cell exhibiting isoform-specific expression achieved by any of the methods of claim 1.

22. (withdrawn) A method for treating a disease comprising administering to a subject in need of treatment an effective amount of a nucleic acid being at least a partially double-stranded ribonucleic acid and the double-stranded portion having at least 95% sequence identity to a common nucleic acid sequence shared by two or more isoforms of said gene product; and an expression vector encoding a desired isoform of said gene product, said desired isoform having a sequence comprising one or more mismatches relative to said double-stranded portion of said nucleic acid, operably linked to a promoter capable of driving expression of said desired isoform in said cell.

23. (withdrawn) A method of assigning function to a desired isoform, said method comprising:

a) exposing a mammalian cell to at least one nucleic acid, said nucleic acid being at least a partially double-stranded ribonucleic acid and the double-stranded portion having at least 95% sequence identity to a common nucleic acid sequence shared by two or more isoforms of said gene product;

b) exposing said mammalian cell to an expression vector encoding a desired isoform of said gene product, said desired isoform having a sequence comprising one or more mismatches relative to said double-stranded portion of said nucleic acid, operably linked to a promoter capable of driving expression of said desired isoform in said cell;

c) identifying a phenotype of said mammalian cell compared to when said desired isoform is absent, and

d) assigning said phenotype or function to said desired isoform.